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Alonso

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[54] **MEANS FOR IMPROVING BIOCOMPATIBILITY OF IMPLANTS, PARTICULARLY OF VASCULAR GRAFTS**

[75] Inventor: **Manuel T. Alonso**, Newport Beach, Calif.

[73] Assignee: **Medtronic, Inc.**, Minneapolis, Minn.

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Related U.S. Application Data

[60] Division of Ser. No. 675,721, Nov. 28, 1984, which is a continuation-in-part of Ser. No. 520,986, Aug. 8, 1983, abandoned, which is a continuation-in-part of Ser. No. 303,345, Oct. 7, 1981, abandoned.

[51] **Int. Cl.**[5] **A61F 2/06**

[52] **U.S. Cl.** **600/36**; 128/DIG. 8

[58] **Field of Search** 623/1, 66; 128/DIG. 8; 600/36

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Primary Examiner—Alan Cannon
Attorney, Agent, or Firm—Reed A. Duthler

[57] **ABSTRACT**

Implants containing a reasonably biocompatible fabric, which is to be exposed to blood flow after implantation, are rendered biocompatible and substantially impervious to blood, by applying a collagen composition containing soluble collagen, and preferably also collagen fibers, to the fabric in such a manner that the collagen composition penetrates into the interstitial spaces of the fabric. The fabric retaining collagen composition is then incubated at elevated temperature for sufficient time to form collagen fibers from the soluble collagen. Thereafter, the implant is dried. The steps of applying collagen composition, incubating and drying are repeated approximately two to four times. The implants, particularly when they comprise tubular vascular grafts, are tested for porosity by placing a pressurized column of aqueous solution, such as saline, into their interior. When the implant is sufficiently impervious to liquid, it is treated with a suitable cross-linking agent, such as glutaraldehyde solution, to bond adjacent collagen fibers to one another. When the implants are tubular vascular grafts, the treatment with glutaraldehyde is conducted in a longitudinally extended position of the graft, and with a pressurized column of glutaraldehyde placed within the interior of the tubular grafts.

15 Claims, 2 Drawing Sheets